



**CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY**

BRIEFING: JULY 2010 BOARD MEETING AGENDA ITEM #9

TO: Chairman Pringle and Authority Board Members

FROM: Tony Daniels, Program Director

DATE: July 8, 2010

RE: Item 9: Los Angeles – Anaheim Shared-Track Alternative and Supplemental Alternatives Analysis Recommendations

Summary

This agenda item is comprised of two parts: (1) A report on the LA-Anaheim Shared-Track Alternative investigation and Staff Recommendation to the Board to add this alternative to the Alternatives Analysis (AA) of this section, including a proposed at-grade station in Anaheim (at ARTIC), and (2) A presentation on the Supplemental AA Report, including the proposed addition of the Shared-Track Alternative and a proposed new At-Grade LA Union Station (LAUS) Alternative.

Part 1: Report on the LA-Anaheim Shared-Track Alternative investigation

- The Federal Railroad Administration's (FRA's) historic decision announced May 27, 2010 to allow mixed-use passenger train service on the SF Peninsula as long as certain conditions are met (e.g., installation of Positive Train Control, grade crossing improvements, use of train equipment meeting FRA crashworthiness requirements, and temporal separation of freight) paves the way for similar FRA waivers for shared-track operations like LA-Anaheim.
- At the Board's direction in April 2010, staff commenced evaluation of a proposed shared-track alternative for future rationalized high-speed rail, commuter rail, and conventional intercity passenger service between Los Angeles Union Station (LAUS) and Anaheim (ARTIC).
- The proposed shared-track alternative envisions two new dedicated mainline passenger alignment composed of two mainline tracks largely within the existing three-track BNSF right-of-way, along the San Bernardino Subdivision between Fullerton Junction and the Hobart Yard vicinity and two at-grade shared-use (passenger and freight) tracks within the existing OCTA right-of-way from Fullerton Junction to the ARTIC terminal in Anaheim. In the Fullerton-Anaheim segment, freight trains will be temporally separated from high-speed trains.

- Operational studies confirm the feasibility of operating future rationalized passenger service on two shared (passenger-only) tracks between just north of Hobart Yard and ARTIC terminal as follows:
 - Commuter (Metrolink): 3 trains per hour (TPH) between Los Angeles and Fullerton during peak period; 4 TPH between Fullerton and Anaheim (1 commuter train each hour from San Diego County would terminate at Fullerton at the Fullerton turnback facility currently under construction).
 - Regional (Amtrak): 1 TPH throughout the day between Los Angeles and San Diego (total of 16 trips each direction)
 - Express (High Speed Trains): 3 TPH in the peak period.

NOTE: Adoption of the Shared-Track Alternative would limit the capacity of the route for high-speed trains to three trains per hour, compared to the projected five trains per hour described in the operational model for the Business Plan. The Final Statewide Program EIR/EIS had assumed 18-45 trains per day between LA and Orange County.

- In Phase 1, the reduction from 5 to 3 trains per hour would reduce high-speed system-wide revenues and riders by an estimated 3.5%. As a result, passenger boardings at ARTIC would drop by an estimated 12%. In the Full-Build System, the reduction to 3 trains per hour would reduce system-wide revenues and riders by an estimated 1.75% and passenger boardings at ARTIC would drop by an estimated 14%.
- Adoption of this alternative would result in a significant reduction in passenger trains operated on the three existing BNSF shared (passenger and freight) tracks between Fullerton Junction and Hobart Yard as the Surfliners and most of the OCTA trains would move to the new passenger tracks. Only up to 32 Metrolink 91/Perris Valley Line and 2 Amtrak Southwest Chief would continue operating on the three BNSF mainlines in the future.
- On May 27, 2010, a meeting was held with the BNSF and the passenger railroads and agencies involved in the LOSSAN corridor to discuss the shared-track concept and get feedback from all parties to help determine the feasibility of this alternative moving forward. There was a general consensus that this concept could be viable. The agency and passenger railroad representatives at the meeting from MTA, OCTA, SANDAG, Metrolink, RCTC, NCTD, Caltrans Division of Rail, Amtrak, and CHSRA were in agreement in principle with the shared-track approach, but they, like BNSF, recognized that there would be a need to settle any legal, operational, and commercial conditions before any final commitment could be made. Additionally, some issues with UPRR freight operations in the LOSSAN corridor still need to be discussed and resolved with the UP.
- With this understanding, BNSF, owner of the LOSSAN Corridor between Redondo Junction and Fullerton Junction, would be limited to three mainline tracks in the corridor, and would forego the option of adding a fourth mainline track in the future. BNSF has no objection to the Authority proceeding with further environmental and other analysis of the shared-track alternative, with the proviso that they are not in a position to say with any degree of assurance or certainty at this time what is feasible, or ultimately practical.
- The top speed of all passenger trains operating on the two passenger-only mainline tracks between LAUS and ARTIC would be 90 miles per hour (mph) to minimize potential train conflicts (overtakes). Only two intermediate stations at Fullerton and Norwalk/Santa Fe Springs would be served off of the two passenger-only mainline tracks, further reducing the

potential for overtakes. The Authority currently plans to provide HST service to only one of these two stations.

- This shared-use alternative would significantly reduce impacts upon the LOSSAN corridor communities between Los Angeles and Anaheim and limit property acquisition needs. The capital cost of the shared-track alternative would be less than the other HST alternative currently being evaluated (Dedicated Track Alternative), primarily because of lower ROW acquisition and tunneling requirements.
- Staff believes this alternative could be added into the current federal and state (NEPA/CEQA) environmental review process without negatively affecting the NOD/ROD schedule.
- In Anaheim, in conjunction with this shared-track alternative, a proposed new at-grade ARTIC terminal configuration has been developed, providing two station tracks and a single low-height island platform for use by Metrolink and Amtrak trains and two dedicated HST station tracks serving two high-level side platforms. This proposed ARTIC at-grade configuration would support turning up to three high-speed trains per hour, assuming a 30-minute turnaround similar to that proposed at the SF Transbay Terminal, and assuming turnaround tracks could be provided for servicing and/or layover at the West Anaheim Yard location.
- South of the LA 8th Street Yard location, the plan includes a new Redondo flyover just north of the exiting flyover across the LA River to accommodate the Metrolink (91 Line) and Amtrak *Superchief* trains, freeing up the existing flyover for use by high-speed trains, Orange County and San Diego Metrolink trains, and Amtrak *Surfliner* trains. Two pairs of mainline passenger tracks are needed between Redondo Jct. and LAUS to handle all the anticipated passenger service – two for high-speed trains and two for Amtrak/Metrolink trains in this short but congested section.
- This plan anticipates BNSF relocating out of 1st St. yard and the Authority using that space for two dedicated high-speed tracks from Redondo Jct. to LAUS, and three 400-meter train-length storage tracks, as well as making provision for a possible future LA-San Diego connection to a potential I-10 corridor alternative alignment. Replacement freight yard tracks would be built further south at La Mirada or possibly in Santa Fe Springs.
- The FRA has concurred in Staff's recommendation to add the shared-track alternative into the LA-Anaheim AA and Draft EIR/EIS. The FRA would also need to approve a waiver to operate Non-FRA-compliant and FRA-compliant passenger equipment in mixed use on shared track between LA-Anaheim, similar to the waiver just approved for Caltrain service on the SF Peninsula.

Proposed new At-Grade LA Union Station Alternative

- Independent of the Shared-Track Alternative, a new at-grade LAUS concept proposed by Metrolink has been developed and evaluated by the Authority that would provide eight tracks and four low-height island platforms for use by Metrolink and Amtrak trains and six dedicated HST tracks serving three high-level island platforms to support high-speed train service between Northern California and Anaheim and future San Diego service. Four of the proposed Amtrak/Metrolink tracks would run through; and four would be stub-ended at the south end of the platforms (as they are today).

Staff Recommendation

- Based on the above evaluation findings, staff recommends adding the Shared-Track Alternative and the new At-Grade LAUS Alternative to the LA-Anaheim Draft EIR/EIS and 15% design process and continuing discussions with the railroad operators and the affected communities along the line to further define and advance these alternatives.

Part 2: Supplemental AA Report for LA-Anaheim including the proposed Shared-Track and new At-Grade LAUS Alternatives

The June 2010 Los Angeles to Anaheim (LA-A) Supplemental Alternatives Analysis (AA) Report serves as a supplement to the Draft AA Report that was issued for the LA-A high-speed train (HST) section in April 2009. Modifications have been made to the alternatives and design options described in the Draft AA Report as coordination with local cities and agencies has progressed and additional engineering detail has become available. The Supplemental AA Report presents the changes from the earlier Draft AA Report, while referencing the previous material and text that has not changed. This report identifies feasible and practicable alternatives to carry forward for environmental review and evaluation in the Environmental Impact Report (EIR) / Environmental Impact Statement (EIS) under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

The Supplemental AA Report recommends that the Dedicated HST Alternative be carried forward into the Draft Project EIR/EIS, with several additional design options to be examined in areas that include LAUS, the crossing of the Los Angeles River and I-710, the Norwalk/Santa Fe Springs and Fullerton HST stations, the Buena Park area, and approaching ARTIC. The Supplemental AA Report also recommends that a Consolidated Shared-Track Alternative be carried forward for further analysis. This alternative, which was developed after extensive coordination with corridor cities and agencies and the public, reduces the number of tracks required in the LOSSAN corridor to five in most sections by consolidating HST service with other passenger operators in the corridor.

The Dedicated HST Alternative and Shared-Track Alternative are identified as the only alternatives capable of accommodating the peak demand forecast for all classes of train service at acceptable levels of reliability and on-time performance. The Program-Level Shared-Track and Expanded Shared-Track Alternatives were screened from further consideration after the determination that the shared use configuration assumed in these scenarios did not adequately meet the need for HST service and cannot support the assumed future volume of freight or passenger trains (including HST) at an acceptable level of performance.

The Dedicated HST Alternative's two tracks that are exclusively for HSTs allow for higher-speed HST operations than the shared-track alternatives, and remove potential impacts from delayed Metrolink and Amtrak service. The current Shared-Track Alternative mitigates the operating impacts of shared-track operation by rationalizing all passenger rail schedules in the corridor, and provides separation between freight trains and HSTs with a primarily-aerial configuration between Hobart Yard and the Norwalk/Santa Fe Springs station where the corridor is at its most constrained.

The largest potential impacts from the Dedicated HST Alternative will likely come from the need to acquire ROW through typical at-grade sections. This additional ROW generally includes industrial uses, but also includes some residential areas in the southern sections of the project. Fewer station tracks are required for this alternative, and the stations are simpler in design than the Shared-Track Alternatives.

The current Shared-Track Alternative attempts to avoid the need for extensive ROW acquisitions with a primarily-aerial configuration in constrained areas and at-grade configuration where existing BNSF ROW is wider than the nominal 100' experienced through most of the LOSSAN. But, it will require more complicated stations than the Dedicated HST Alternative due to its mix of vehicle types (HSTs are designed differently than the existing Amtrak and Metrolink trains in the LOSSAN corridor).

Based on the results of the operations modeling, only the Dedicated HST and the current Shared-Track Alternatives meet the project purpose and need. Both the Program-Level Shared-Track and Expanded Shared-Track Alternatives failed to meet the project purpose and objectives and are not feasible. The Program-Level Shared-Track and Expanded Shared-Track Alternatives were recommended for elimination from further consideration in June 2009; only the Dedicated HST and Consolidated Shared-Track Alternatives are recommended to be carried forward into preliminary design and environmental review.

Dedicated HST Alternative

Individual subsections of the Dedicated HST Alternative have non-typical configurations or several design options to address key constraints. A summary of the subsection design options studied as part of this alternative is presented in Table 1. The table also lists whether they will or will not be carried forward for analysis in the Draft EIR/EIS. Approximately 41 percent of the corridor would be at-grade, 31 percent aerial, six percent trench and three percent fill, with the remaining 19 percent with multiple options.

Table 1: Summary of Dedicated HST Alternative Subsection Design Options

LA-A HST Subsection	Design Options Carried Forward	Design Options Eliminated from Further Consideration
Los Angeles Station	<ul style="list-style-type: none"> Los Angeles Union Station (LAUS) Aerial HST Station Option LAUS At-Grade HST Station Option 	<ul style="list-style-type: none"> LAUS Deep Tunnel HST Station Option Vignes Aerial HST Station Option West Bank Trench HST Station Option
Los Angeles River	<ul style="list-style-type: none"> At-Grade Option 	<ul style="list-style-type: none"> Tall Aerial Option
Vernon / Commerce Rail Yards	<ul style="list-style-type: none"> I-710 At-Grade Option I-710 Tall Aerial Option 	
Pico Rivera Rail Yard	<ul style="list-style-type: none"> Existing Track Alignment Option Shifted Track Alignment Option 	
DT Junction Area	<ul style="list-style-type: none"> At-Grade Option Tall Aerial Option 	
Norwalk / Santa Fe Springs Station	<ul style="list-style-type: none"> No HST Station Option East HST Station Option 	<ul style="list-style-type: none"> North HST Station Option
La Mirada Rail Yards	<ul style="list-style-type: none"> At-Grade Option 	<ul style="list-style-type: none"> Aerial Option
Buena Park / Fullerton Airport	<ul style="list-style-type: none"> Underpass Option 	<ul style="list-style-type: none"> Flyover Option
Fullerton Station	<ul style="list-style-type: none"> No HST Station Option At-Grade HST Station Option 	
Anaheim	<ul style="list-style-type: none"> At-Grade Option Deep Bore Tunnel Option 	<ul style="list-style-type: none"> Aerial Option Cut-and-Cover Tunnel Option
Anaheim (ARTIC) Station	<ul style="list-style-type: none"> West At-Grade HST Station Option Underground HST Station Option 	<ul style="list-style-type: none"> East At-Grade Station Option
Vehicle Maintenance Facility	<ul style="list-style-type: none"> Anaheim West Option Los Angeles 8th Street Yard site* 	<ul style="list-style-type: none"> Los Angeles Golden Pig Option Anaheim East Option

- *Note: Staff has not completed its analysis of the possible 8th Street Yard site. If it is determined to be viable, it would be carried forward through the environmental review process. The Authority remains open to considering other potential locations within the Los Angeles to Anaheim corridor if such sites are identified in time.

Shared-Track Alternative (Dedicated Passenger Alignment)

A summary of the subsection design options studied as part of this alternative is presented in Table 2. The table lists whether they will or will not be carried forward for analysis in the Draft EIR/EIS. Approximately 71 percent of the corridor would be aerial, 26 percent at-grade, and 2 percent cut and cover.

Table 2: Summary of Consolidated Shared-Track Alternative Subsection Design Options

LA-A HST Subsection	Design Options Carried Forward	Design Options Eliminated from Further Consideration
Los Angeles Station	<ul style="list-style-type: none">• LAUS At-Grade HST Station Option	
Los Angeles River Adjacent	<ul style="list-style-type: none">• Aerial Option• Cut and Cover Option	<ul style="list-style-type: none">• Cut and Cover Option
Los Angeles River Crossing	<ul style="list-style-type: none">• Aerial Option	
Norwalk / Santa Fe Springs Station	<ul style="list-style-type: none">• No HST Station Option• North HST Station Option	
La Mirada Rail Yards	<ul style="list-style-type: none">• At-Grade Option	<ul style="list-style-type: none">• Aerial Option
Buena Park / Fullerton Airport	<ul style="list-style-type: none">• At-Grade with Underpass Option	<ul style="list-style-type: none">• Flyover Option
Fullerton	<ul style="list-style-type: none">• At-Grade Option	<ul style="list-style-type: none">• Aerial Option
Fullerton Station	<ul style="list-style-type: none">• No HST Station Option• At-Grade HST Station Option	
Anaheim	<ul style="list-style-type: none">• At-Grade Option	
Anaheim (ARTIC) Station	<ul style="list-style-type: none">• At-Grade Option	
Vehicle Maintenance Facility	<ul style="list-style-type: none">• Anaheim West Option• Los Angeles 8th Street Yard site*	<ul style="list-style-type: none">• Los Angeles Golden Pig Option• Anaheim East Option

- * Note: Staff has not completed its analysis of the possible 8th Street Yard site. If it is determined to be viable, it would be carried forward through the environmental review process. The Authority remains open to considering other potential locations within the Los Angeles to Anaheim corridor if such sites are identified in time.

The full text of the June 2010 Los Angeles- Anaheim Supplemental Alternatives Analysis Report will be available on the Authority's Website.

Staff Recommendation

Staff recommends Board approval and public release of the Los Angeles to Anaheim Supplemental Alternatives Analysis Report.